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ABSTRACT

Sex equity research efforts undertaken by the Office of Institutional Studies at the University of Maryland at College Park are discussed. A plan was developed for examining salary differences at three distinct times: time of appointment, upon promotion and/or award of tenure, and at annual salary reviews. Salaries of male and female faculty holding the doctorate and employed at the ranks of assistant, associate, and full professor in fall 1979 were studied. Initial salary studies also considered years since award of the doctorate and the academic discipline. The annual salary equity review process was designed to be a part of the regular annual salary review used to award merit increases. The review process was focused primarily on the equity of female faculty salaries, although inequity in a male's salary might also be identified. A number of problems were associated with the studies: data limitations, time and resource limitations, interpretive problems, political problems, and implementation problems. It is concluded that thorough examination of salary issues and actions to resolve inequities can help forestall expensive and disruptive litigation. (SW)

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Sex Equity Research: Keeping the Campus Out of the Courtroom

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THE ASSOCIATION FOR INSTITUTIONAL RESEARCH

This paper was presented at the Twenty-Fourth Annual Forum of the Association for Institutional Research held at the Hyatt-Regency in Fort Worth, Texas, May 6-9, 1984. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum papers.

Daniel R. Coleman, Chairman
Forum Publication
Advisory Committee

SEX EQUITY RESEARCH: KEEPING THE CAMPUS OUT OF THE COURTROOM

There are probably very few institutional researchers who have not had to be concerned in some way or another with affirmative action and sex discrimination. A review of the literature pertaining to sex discrimination reveals a myriad of articles whose authors are familiar to most of us. Among them one can find Muffo, Simpson, McLaughlin, Fendley, Gappa, and in 1974, an issue of New Directions for Institutional Research titled Toward Affirmative Action.

Institutional researchers are called upon to assist in the development and updating of affirmative action plans in response to Executive Order 11246. We search for better "availability data," calculate workforce utilization and turnover rates, and produce "goals" for faculty as well as non-faculty staff.

Preparation of the campus affirmative action plan, however, usually becomes routine and actually causes little interruption in our day-to-day operations. Our work schedules are seriously disrupted, however, when we are involved in the campus' response to a court suit brought under Title VII of the Civil Rights Act of 1964 or a complaint filed under the Equal Pay Act. If the suit or complaint happens to be brought on behalf of a group of employees, our workload is affected to an even greater extent. We benefit, then, as well as the campus when we do whatever we can to prevent complaints from mushrooming into class-action litigation -- to keep the campus out of the courtroom.

SEX EQUITY RESEARCH AT UMCP

The Office of Institutional Studies at the University of Maryland at College Park has been engaged in a number of sex equity research efforts directed toward that end. Perhaps the first such research was a salary study conducted

by the Institutional Research Office in 1972. Using regression analysis, this study compared the salaries of 134 women with those of 1031 men. There was apparently little fanfare accompanying the report.

The results of the study were taken seriously by the Chancellor, however. That study showed a difference between men's and women's salaries. In an attempt to remedy this situation, the Institutional Research Office annually produced graphs of men's and women's salaries by department. Chairs were asked for justification when women's salaries were lower than their male peers. Although the actual dollar amounts of the increases which were awarded are now unknown, a perception exists among the administrators who were then around that progress was made. This process continued until there was a change of administration in 1975.

In Academic Year 1978-79 the Office of the Vice Chancellor for Academic Affairs undertook an examination of faculty salaries using a "matched-pairs" approach. Each of the campus' five provosts was informed of the salary discrepancies as well as the particular women who appeared to be "underpaid" in each division. The women's salaries were reviewed and some adjustments were made. A problem with this process, as with the process mentioned earlier, was that the men who were responsible originally for setting women's salaries were the same men who were asked to review them for equity.

Then in May 1980, a noted female professor on campus reported the results of her own salary study. Using multiple regression techniques to analyze salary data collected from the published line-item budget and degree data obtained from the Undergraduate Catalog, she determined that had women faculty been men, they would have been paid an average of \$1,405 more in Fall 1979. Armed with these results, she filed a complaint with the Equal Employment Opportunity Commission (EEOC).

In the meantime, the Office of Institutional Studies began to look at men's and women's salaries, first by comparing means within groupings based on years-since-terminal-degree and academic division and later using regression techniques. A plan was developed for examining salary differences at three distinct times: (1) at time of appointment, (2) upon promotion and/or award of tenure, and (3) at annual salary reviews. One must know at what points salary discrepancies occur in order to determine appropriate remedies.

Annual Salary Studies

The first study examined the salaries of men and women faculty holding the doctorate and employed at the rank of assistant, associate, and full professor in Fall 1979. As might be expected, the first study was very arduous and painful. A methodology had to be decided upon and the appropriate variables selected. In addition, a good deal of effort had to be expended to verify the data base. Because of the sensitive nature of the research topic, discussions of the methodology and variables included the Chancellor, the Vice Chancellor for Academic Affairs, campus legal counsel, the Chancellor's Womens Commission, consultants and even occasionally a representative of the State Attorney General's Office. There was no attempt on the part of the administrators to influence the results of the study; everyone was interested in producing a reliable, valid study of faculty salaries. The time and effort invested in this initial study paid dividends since the analysis has now been repeated three times using the same methodology and variables, thus permitting longitudinal analysis of trends.

There are many types of variables that must be considered for a study of faculty salaries: (1) level and years of experience, (2) scholarly achievement, (3) field of expertise as reflected in the departmental affiliation, and (4) racial and cultural characteristics. There are four

considerations which must be weighed when selecting variables: (1) availability, (2) accuracy, (3) cost, and (4) predictive power. After careful consideration and research, the following variables were selected: sex, rank, salary, academic unit, years-since-degree, and years-since-degree-squared. These data were available in the "frozen" personnel data base, but once the study was under way, we discovered much of the data were incorrect and, consequently, staff spent a great deal of time "cleaning" the data. The appropriate population was the next item to be addressed. We selected only full-time faculty holding an earned doctorate, deciding to do a separate analysis of non-doctorate-holding faculty. Further, we limited the analysis to the three professorial ranks: professors, associate professors, and assistant professors. All faculty holding administrative positions, including chairs, were eliminated. Subsequent to the first study, we have selected a sub-group of this population to analyze. This "Constant Group" comprises those faculty whose status has not changed from the previous year. Faculty who are newly hired, terminated, promoted, or were administrators or part-time in the prior years are excluded from this analysis, permitting us to examine more precisely factors accounting for salary differences and the results of actions taken to achieve equity.

The methodology selected for the salary study was regression analysis. Specifically, regression equations were calculated for each of ten academic units, based on the data for all men in the unit. The ten-month salary of each female faculty member was compared with these male regression equations to determine how far, and in which direction, her salary deviated from that predicted by the respective prediction equation for men in her academic unit and rank.

Each year's salary analysis showed an overall discrepancy between women's actual and predicted salaries. In 1979 the cumulative difference was about

\$110,000, increasing to \$141,681 in 1980. By 1981 the difference had declined to \$95,231 and to \$88,711 by 1983. Unfortunately, the latest study, now being completed, shows an increase in the difference to about \$127,000 for 1983-84. These statistical analyses of salary differences did not provide a basis for identifying and correcting individual salary inequities that might exist. Therefore, following the study of 1979 salary differences a review process was developed to examine the salaries of each female faculty member.

Salary Equity Review Process

The statistical studies provided information on cumulative differences between female faculty members' salaries and salaries for groups of males who possess a few common characteristics. In this study, as noted, these characteristics were rank, years-since-award-of-doctorate, and academic discipline cluster. Obviously these three variables do not cover anywhere near the full range of variables that determine salary differences between individuals in a market-sensitive, merit-based compensation system. These three variables account for major differences in salary levels but any salary discrimination which might exist typically is one of many remaining variables that determine the marginal unexplained differences between male and female faculty salary levels.

Therefore, one could not conclude from the results whether or not the salaries of women faculty members were equitable, the salary differences revealed may or may not have been justifiable. Consequently, an annual salary review process was established to follow these studies. This review process was designed to answer the question of salary equity for each female faculty member and to provide a basis for making any indicated salary adjustments. The statistical study aided this review process by: 1) identifying areas where sizable average salary differences existed so further attention could be

focused on them; 2) tracking trends in average differences over time to identify possible patterns; and 3) noting the effects of new appointments, promotions, pay raises, and terminations on average salary differences.

The annual salary equity review process was designed to be a part of the regular annual salary review used to award merit increases. In Maryland the Legislature typically provides some faculty salary increase funds for award on the basis of merit. These increases may or may not be accompanied by a percentage across-the-board cost-of-living salary increase. The campus allocates merit salary increase money to each of the five campus academic divisions, which in turn further allocate the funds to their colleges, schools and departments. Each college, school or department makes merit salary increase recommendations to the divisional Provosts, who then forward their recommendations to the Academic Vice Chancellor.

Annually, before merit salary decisions are made, each of the five Provosts appoints a committee of seven senior faculty members for the purpose of reviewing the productivity and salary of each female faculty member in the division. Five of these members participate in each divisional salary review. Of these five, at least two are women. As salaries of faculty from specific departments are reviewed, two senior faculty members from the department are added to the committee. Both departmental representatives are replaced when the review of their department is completed. Committee members do not attend sessions in which their own salaries are being considered.

The purpose of this division-level committee review is to examine the current salary of each female faculty member and to recommend to the Provost individual adjustments, if any are warranted, on the basis of the female's merit in comparison to that of similarly situated male colleagues. For purposes of this review, "similarly situated" means the same department, the same rank, and approximately the same number of years since obtaining the highest

degree. The Office of Institutional Studies prepares a computer printout containing a list of faculty by department, rank, current salary, and the years-since-highest degree to facilitate this salary review process.

When male faculty are selected for comparison to a given female faculty member, the committee makes an assessment of merit, taking into account all the factors which the department considers important and the relative weights attached by the department to research and scholarly productivity, teaching effectiveness, and public service. The committee considers any other relevant factors, such as the employment market conditions affecting a particular discipline. After considerations of merit have been made, the committee recommends to the Provost where a given woman's salary should stand relative to her male comparison group. When the comparison involves more than one similarly situated male faculty member, the committee, in recommending an adjustment, indicates the placement of the female faculty member within the group. This is done by selecting the most comparable male faculty member from the group and indicating whether the female's salary is related to his in a similar manner. In case there is no truly comparable male faculty member, the female's salary is related to that of the male who is most comparable.

This review process is focused primarily on the equity of female faculty salaries. However, the possibility exists that the committee might identify a male faculty member whose salary was not equitable in terms of those of similarly situated female faculty. Such an inequity obviously should be corrected; in fact, not to do so would invite charges of "reverse discrimination." Therefore, if the committee, as a result of its review of faculty merit, determines a male faculty member's salary should be increased relative to that of similarly situated females, then such an increase also is recommended.

Committee recommendations for changes in relative female or male faculty salary levels, if any, are reviewed by the Provosts at the same time they review college, school and departmental recommendations. If chairpersons' recommendations differ from those of the committee, the Provosts resolve these differences, redistributing salary increases when appropriate, to make all adjustments within the division's total merit salary allocation. The Provosts' salary recommendations are reviewed by the Vice Chancellor for Academic Affairs and finally approved by the Chancellor for inclusion in the annual Campus Working Budget.

These annual reviews of each female faculty member's salary have been conducted since Spring 1981. As a result of these reviews, 161 salary adjustments were made to women, totaling \$143,860. In 1983, for the first time, adjustments were made in the salaries of three men totaling \$1,225.

Salaries of New Faculty

The second point where decisions can lead to salary inequities is the determination of pay upon initial appointment. Analyses of initial faculty salaries are done annually to determine the effect, if any, that salaries awarded new faculty have on differences noted for the total population of faculty. In the 1982 study, newly hired assistant professors was the only group containing any women. A regression to predict salary was run for all male faculty in the study population who were not new in Summer 1982. Predicted salaries, controlling for division, rank, and years since doctoral degree, were then obtained separately for the new male and female assistant professors. Except for one woman's salary, initial salaries of male and female assistant professors were comparable.

Salaries of Faculty Without Doctorates

A supplemental study was needed to assess the equity of salaries of women faculty who did not possess the doctoral degree, a diverse group. The first of the annual salary studies of faculty without the doctorate was conducted in Fall 1982. Within academic units, the men's mean salaries by rank were used to predict the women's salaries within rank. Only three academic units employed women without earned doctorates: the non-college disciplines in the Division of Arts and Humanities, the College of Agriculture, and the Colleges of Education and Human Ecology.

For the non-college disciplines in Arts and Humanities, the total actual salaries for female professors and assistant professors were smaller than the salaries predicted from the men's mean salaries. However, the actual salaries for female associate professors were larger than predicted and off set the differences at the other ranks.

For the other two academic units, there were non-doctoral women only in the assistant professor rank. Actual salaries of women in these units were greater than predicted in one case (College of Agriculture) and lower in the other (Colleges of Education and Human Ecology).

Promotion and Tenure Study

The third point where decisions are made that can affect salary equity is during reviews for promotion and tenure. If women are not equitably promoted and tenured then the "within rank" studies described above would not reveal this potential source of salary inequity. A major comparative study of promotion and tenure rates and time to promotion was conducted over the course of the past three years by the Office of Institutional Studies' staff. This study involved examining the entire personnel record of men and women faculty hired as assistant or associate professors in 1973, 1975, and 1977. A data

base had to be created from the "frozen" personnel files for each year beginning in 1973. Because of the high error rate detected by computer cross-checking, each personnel folder was pulled and over 100,000 data items were manually verified.

Promotion and tenure rates and time to promotion and tenure were analyzed by classes using chi-square and t-tests and multiple regression analysis: three "Assistant Professor" classes (1973, 1975, and 1977), three "Hired as Associate Professor" classes, and three "Promoted to Associate Professor" classes. Generally, the results for the years studied show no statistically significant differences between male and female tenure and promotion rates and time to tenure and promotion. Thus this study supports the validity of the salary study findings which examined salary within each rank. Because of the small numbers of women (and in some cases the small numbers of men) and their uneven distribution among disciplines, comparisons could be made only at the divisional, and in some cases campus-wide, level. Another methodological limitation was the lack of information on some key variables that could affect tenure decisions, such as number and quality of publications, prior academic experience, teaching evaluations, reputation, etc.

Perhaps the most interesting result was the revelation that the promotion and tenure rates declined substantially over the period studied for both men and women. For assistant professors, as of six years after assistant rank date, promotion rates dropped from about 43 percent for the class of 1973 to 27 percent for the class of 1977. Promotion rates for associate professors six years after attaining the associate rank declined from 25 percent for the class of 1973 to 15 percent for the class of 1977. The reasons for these declines, however, can only be speculated -- the foremost reason probably being a change in policy to "tighten the tenuring belt."

Technical and Political Problems Associated With the Studies

During the conduct of the studies described above, and during the administrative actions following their completion, a number of problems were identified that, no doubt, are common to such efforts. The technical problems included data base adequacy, time and resource limitations, and accurate communication of study results. Political problems involved communication constraints associated with litigation, faculty distrust of the administration's motives and actions and various impediments to initiating action on findings.

Data Problems. At UMCP, like many other institutions, faculty data bases are constructed primarily to facilitate operational decisions and HEGIS reporting. The numbers used for most policy and planning processes are annual "snapshots" which report faculty data as of a particular date each fall. Salary equity studies, however, require comparable and highly accurate longitudinal data on faculty. Unless the data base is designed specifically with longitudinal use in mind and contains the data elements needed for such analyses, very likely it will have significant limitations which are very expensive to correct. Furthermore, if the data base is not used in ways that affect those providing the data then the data are likely to contain high error rates.

Time and Resource Limitations. When a campus does not have a reasonably complete and accurate data base, salary equity studies can be highly time consuming and expensive. We discovered data problems incrementally while undertaking these studies. The promotion and tenure study began as a six month effort and turned into a two-and-a-half year project. Consequently, there may be considerable logic in starting with data base design and accumulating data from the present if your data base is inadequate, rather than trying to construct the history from faculty files. Poor historic data does not preclude one from making current comparisons and acting on the results while a better data system is developed.

The development and maintenance of a first-rate faculty data base, however, also is expensive. These costs are implicitly, if not explicitly, traded off by campuses against the value of the data. This no doubt explains the quality of these data bases. Today one should realize that good data has a high value when a campus faces litigation. Data systems take time to develop before they produce needed information and institutions which haven't addressed data problems are finding it difficult to defend themselves when faced with a law suit. A good faculty data base can help one prevent, as well as respond more effectively to, litigation.

Another cost of salary review processes is the time and effort required from faculty and administrators to review salary and promotion and tenure decisions for equity. At UMCP some faculty and academic administrators viewed the panel reviews of individual female faculty member's salary levels as time-consuming red-tape added onto an already lengthy and cumbersome process.

Interpretive Problems. The reports of the statistical studies had to address both lay audiences and critical researchers. Consequently, statistical formulas and technical terms had to be explained simply and clearly enough to communicate with lay readers while not losing their precision for researchers interested in methodology. This proved to be a difficult balance to strike and occasioned numerous drafts of the study reports. Few readers found the results fully satisfactory. In addition, because of the sensitivity of the studies, statements not only had to be complete and factually accurate but also needed to be accurately interpreted by readers. Some effort devoted to predicting possible ways statements could be misinterpreted seemed to pay off.

Another balance that was sought in writing the reports was to reveal fully all that could be concluded about the data while at the same time wording the findings so that they did not inadvertantly provide opposing attorneys with evidence they could use out of context against the campus. This was not

a question of withholding or misinterpreting data but of ensuring that an accurate balance was presented between the adverse and positive findings, and that these findings were placed in context. One area in which this problem surfaced was interpreting the cumulative differences revealed in the salary studies. One could not conclude from the studies that these differences resulted from discrimination but it was very complex to explain clearly why that was the case. Another area subject to confusion was explaining the need to examine separately: 1) initial salary awards, 2) annual salary increments, and 3) promotion and tenure action effects on salary levels in order to identify the location of any problems. Some faculty members argued rank should not be a variable in the annual regression analysis of salary levels. However, failure to examine rank independently, through the promotion and tenure study, would have limited our ability to determine the extent to which each of the two decision processes contributed to any salary discrepancies.

Most research reports tend to concentrate on what the study reveals. For studies which might be used in legal proceedings we found it was equally important to state clearly what one could not conclude from the findings.

Finally, we found that many of the female faculty presumed our studies would reveal clear evidence of discrimination and our failure to do so would be the result of clever manipulation of data and/or incomplete presentations of facts. Administrators, on the other hand, frequently exhibited some need to justify past actions and presumed they had acted fairly. In order for the research reports to be credible they needed to be as candid as possible for the faculty audience and as fair as possible for those administering salary decisions. The ability to simultaneously achieve both of these objectives is certain to favorably influence the career of any institutional researcher!

Political Problems. Many of the potential benefits of salary equity studies are lost if they are not undertaken before the onset of litigation.

Once litigation begins the parties no longer can communicate freely and engage in the candid discussions necessary to resolve amicably any perceived or real problems. Once litigation begins, communications begin to flow between the parties through their attorneys. The attorneys generally take a conservative view toward providing information which could, in any way, strengthen the opposing attorney's position. The faculty can continue to take their case to the press but the administration is restricted in what it can reveal. These circumstances tend to impede reaching a negotiated settlement and raise suspicions about each other's good faith.

Similarly, faculty frequently are suspicious of administrators going to attorneys because they view this as attempts to obtain help in explaining away salary differences. Yet responsible administrators cannot address such complex issues, which potentially involve litigation, without sound advice. Our attorneys' advice primarily involved their explaining provisions of law and legal precedents which set forth campus responsibilities and particularly their suggesting improvements in the precision of our language. They made a substantial contribution to the clarity of our reports.

Implementation Problems. Once the studies were completed their findings suggested the need for implementing some actions. The campus did act on these findings but we discovered some impediments to actions that no doubt confront other campuses. First, acting on findings can be viewed as an admission of past guilt. This can be legally dangerous as well as ego bruising. However, failure to act only heats up existing forces for change and makes future resolution of problems more difficult. We decided to err on the side of action. We were supported in this decision by our attorneys, with some mild concern. Since we did not discover problems that could readily be proved as resulting from discrimination this aided our reaching this high ground.

Second, the publicity generated by studies of equity invariably focuses on negatives. One rarely gets a balanced interpretation of the situation. Consequently, administrators seek to lessen their exposure to such adverse publicity. However, withholding information leads to further suspicion and lack of credibility. We sought to err on the side of openness.

Third, the advocates of most causes are not conservative in their statements and, sometimes, their demeanor. One rarely gets attention by understating a case. Such advocacy frequently engenders a counter reaction. Administrators generally seek to avoid appearing to "cave in" to intemperate demands and actions. Some strong character traits are needed to separate the merits of a case from the style and statements of its proponents.

Fourth, actions taken in response to studies frequently are viewed as circumventing established academic procedures. Furthermore, frequently such actions require additional time from faculty or staff and more paperwork. No one likes an added administrative burden, especially perhaps in institutions of higher education, but the benefits from correcting any problems, especially if it helps one avoid litigation, are worth a considerable effort. Both demands on time and resources and effects on productivity and morale that accompany a law suit justify substantial campus effort to review and correct any existing inequities.

Fifth, adjustments to female faculty salaries can be viewed as "reverse discrimination" by male faculty. We have addressed this problem in part by also correcting men's salary levels when needed. In addition, male faculty, and "unadjusted" female faculty both can view equity adjustments as taking salary funds that otherwise might be applied to increase their salary levels. This can engender a belief that they are paying for the past sins of administrators and faculty salary committees. There, perhaps, is some truth to

this charge but, unless one is able to get additional funds provided for this purpose, equity requires such salary adjustments.

Finally, funds for equity salary adjustments may be taken from non-salary sources in campus budgets. Those losing funds as a result of such decisions also are likely to offer some resistance to equity actions.

Conclusions

There has been a wave of litigation in higher education recently over salary equity for female faculty. The self interest as well as ethical responsibility of institutions suggests they actively review the salary status of their female faculty before the on-set of litigation whenever possible. Institutional research staffs generally are well suited for this task. Making a thorough examination of, and taking indicated actions on, salary issues can help forestall very expensive and disruptive litigation.

We undertook these studies and reached these conclusions through the usual trial and error processes. We hope our experience over the past three years at the University of Maryland at College Park, described in this paper, will help other institutions examine their own circumstances in a more informed manner.